PB85-214179

Superfund Record of Decision (EPA Region 10)
Commencement Bay/Tacoma Well 12A Site
Washington, March 1983

(U.S.) Environmental Protection Agency
Washington, DC

1 Mar 83

U.S. Department of Commerce
National Technical Information Service
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United States
Environmental Protection
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Emergency and
Remedial Response

EPA/ROD/R10-83/001
March 1983

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EPA

Superfund Record of Decision:

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TECHNICAL REPORT DATA
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1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA/ROD/R10-83/001		PB85-214179/AS

4. TITLE AND SUBTITLE	5. REPORT DATE
SUPERFUND RECORD OF DECISION: Commencement Bay/Tacoma Well 12A Site, WA	03/01/83 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Same as box 12.	10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report 14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The South Tacoma Channel, Well 12A is in the City of Tacoma, WA, and lies within the Commencement Bay drainage area. In Sept. 1981, Well 12A was voluntarily removed from service by the city when chlorinated organic solvents were detected. During 1982, volatile organics were discovered in nearby Well 9A which was also closed. A ground water study confirmed that should the contaminated wells closest to the source remain shut down, pumping of the other production wells would draw the contaminated plume throughout the well field.

The cost-effective Initial Remedial Measure (IRM) is to pump and treat water from Well 12A. Pumping of the well will assist in confining contaminant movement within the aquifer. Air stripping will occasionally allow the city to use the water when its quality is acceptable. The cost of the project is estimated to be $1,200,000. Operation, maintenance, and monitoring costs are estimated to be $60,000 annually.

Key Words: Cost Effective Alternative, Ground Water Contamination, Hydraulic Barrier, Contaminant Source Location, Cleanup Goals, Dilution, Water Quality Criteria, Air Pollution, Noise Pollution, Selected Alternative

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Commencement Bay/Tacoma Well 12A Site, WA Contaminated media: gw Key contaminants: solvents, VOCs, TCE, DCE		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report) None	21. NO. OF PAGES 12
	20. SECURITY CLASS (This page) None	22. PRICE $7.00

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

ROD ISSUES ABSTRACT

Site: Tacoma Well 12A, Washington

Region: X

AA, OSWER
Briefing Date: March 18, 1983

SITE DESCRIPTION

The South Tacoma Channel, Well 12A is in the City of Tacoma, Washington and lies within the Commencement Bay drainage area. In September 1981, Well 12A was voluntarily removed from service by the city when chlorinated organic solvents were detected. During 1982, volatile organics were discovered in nearby Well 9A which was also closed. A ground water study confirmed that should the contaminated wells closest to the source remain shut down, pumping of the other production wells would draw the contaminated plume throughout the well field.

SELECTED ALTERNATIVE

The cost-effective Initial Remedial Measure (IRM) is to pump and treat water from Well 12A. Pumping of the well will assist in confining contaminant movement within the aquifer. Air stripping will occasionally allow the city to use the water when its quality is acceptable. The cost of the project is estimated to be $1,200,000. Operation, maintenance and monitoring costs are estimated to be $60,000 annually.

ISSUES AND RESOLUTIONS

1. Pumping and treatment of one well in a field of multiple wells to provide a hydraulic barrier to future contaminant migration into the field and into other wells may be considered an appropriate remedial action.

2. Investigation to locate a contaminant source should continue even when treatment of a contaminated area has been approved as a remedial response. The source, when identified, should also be treated by an appropriate remedial action. The pumping of Well 12A will prevent migration of the contaminants to other wells in the field, but does not eliminate the source of contamination. Work on locating the source is continuing.

KEY WORDS

- Cost Effective Alternative
- Ground Water Contamination
- Hydraulic Barrier
- Contaminant Source Location

ISSUES AND RESOLUTIONS	KEY WORDS
3. Establishing the goal for cleanup involved adjusting the water quality criteria to reflect periodic use and dilution.	. Cleanup Goals . Dilution . Water Quality Criteria
4. When selecting a remedial action it is important to evaluate air and noise pollution which may result from the implementation of the remedy.	. Air Pollution . Noise Pollution . Selected Alternative

MAR 18 1983

RECORD OF DECISION

REMEDIAL ACTION SELECTION

SITE: Tacoma Well 12A
Commencement Bay/South Tacoma Channel
Tacoma, Washington

Documents Reviewed

I have reviewed the following documents describing the need for and analysis of the feasibility and cost-effectiveness of remedial alternatives for Well 12A in the South Tacoma Channel:

Study Titled: Remedial Investigation, Well 12A
Tacoma, Washington, 2/10/83 (Draft)

Study Titled: Tacoma Well 12A, Remedial Action
Feasibility Study, February 1983 (Draft)

Executive and Narrative Summaries

Record of Decision Summary Sheet

Public Participation Responsiveness Summary

Staff Recommendations

Declarations

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, and the National Oil and Hazardous Substances Contingency Plan, I have determined that the pumping and treatment of Well 12A is a necessary and timely remedial action to protect public health and the environment, is a feasible and cost-effective remedy, and is a necessary component of any final remedy that will effectively and reliably mitigate and minimize damage to, and provide adequate protection of public health, welfare and the environment. I have also determined that the action is appropriate when balanced against the need to use Trust Fund money at other sites.

Acting Assistant Administrator
Office of Solid Waste and Emergency Response

WELL 12A REMEDIAL ACTION
EXECUTIVE SUMMARY

In conjunction with several State and local agencies, EPA is proposing a remedial action to allow treatment of water from the contaminated drinking water Well 12A. EPA is working in close conjunction with the State Departments of Ecology and Social and Health Services, the City of Tacoma Water Division and the Tacoma Pierce County Health Department.

The well was discovered to be contaminated with volatile organic solvents about September 1981. At the advice of the Department of Social and Health Services, the City voluntarily removed the water well from service. In April 1982, U.S. Environmental Protection Agency began an investigation of the extent and nature of the contamination found in Well 12A. At the same time, the Tacoma Pierce County Health Department began an investigation as to possible sources of the contaminants. The results of the former investigation demonstrate that there is a contaminated plume with organic solvents in concentrations of parts per million to the northeast of City Well 12A. The ultimate sources of this plume have not yet been identified.

During 1982, Well 12A was out of service but other wells within the wellfield continued to pump. The contaminant plume moved into the wellfield and volatile organics were discovered in nearby Well 9A. This well is now closed. Results of the groundwater investigation indicate that contamination will continue to move into the wellfield as pumping continues unless remedial action is pursued. Without action, the contamination will effectively eliminate Tacoma's source of water for meeting the higher summer demand.

The proposed action is a treatment system in Well 12A which will remove the contamination through aeration. Pumping of Well 12A will provide a barrier to future contaminant migration into the wellfield. Treatment will provide the City with water of acceptable quality for consumption. It is possible that the system will be overloaded by the contaminant levels. In the case that effluent quality falls, the system will discharge to Commencement Bay but at a level sufficient to protect aquatic life.

Several alternatives were examined before selecting this system. The proposal of 5 aeration towers is the most cost-effective of any of the systems evaluated. Cost of the project is about $1.2 million.

Additional work is being done to locate the source of contamination. If this can be accomplished, further measures will be taken to mitigate contamination of the aquifer.

More detailed information can be obtained from the Remedial Action Feasibility Study and by contacting EPA Region 10.

NARRATIVE SUMMARY

HISTORY

Tacoma Well 12A is within the South Tacoma Channel Commencement Bay Superfund designation. This area of Tacoma, Washington is a commercial industrial zone with a long history of development.

In September 1981, volatile organic contaminants were found in the well. At the advice of the State Department of Social and Health Services, the well was removed from service by the City. At that time, the concentration was several hundred parts per billion, including tetrachloroethane, trichloroethylene and dichloroethylene.

In October, Commencement Bay was listed on the Interim Priority List. A remedial groundwater investigation was initiated to determine the extent of contamination and potentially locate a source. Concurrently, surface investigations looked at business types to identify those which may have contributed to the problem.

To date, no source has been identified. However, a plume of contamination has been located giving a general direction, northeast, to the primary source. Concentration within the plume is several parts per million.

During 1982, Well 12A was out of service. All of the other wells were in operation during the summer pumping season. Analysis of these other wells showed that an additional well had become contaminated. This well was the closest to 12A, immediately southwest. The groundwater study confirmed that should the contaminated wells closest to the source remain shut down, pumping of the other production wells would draw contaminants closer and evidently all the wells would be tainted.

With two wells contaminated and to be held out of service, the City of Tacoma is placed in a situation of water shortages during the summer. Further, if contamination is permitted to move into the wellfield, 30% of the total water system capacity would be lost.

CURRENT STATUS

The remedial action feasibility study addresses the options for mitigation. They are generally 1) no action and abandonment of the contaminated wells, 2) alternative water supply, and 3) treatment.

No action is an unacceptable option as it does nothing to protect the drinking water supply and quality for the City of Tacoma. Without some mitigation, contamination would move within the aquifer to other wells.

No alternative sources of water exist for the City in the short term. The wellfield is essential to the City's future drinking water planning.

Pumping and treatment of Well 12A is the only alternative capable of protecting the ground water aquifer and alleviating drinking water shortages. Pumping of the well will provide an effective hydraulic barrier to contaminant movement within the aquifer. Treatment of the water will allow the City to use the water as its quality permits or to discharge the water to Commencement Bay at a quality sufficient to protect marine life.

Treatment at Well 12A is an interim measure. As a source or sources can be identified, actions for local control at the source may be more effective in mitigating contamination in the aquifer.

PUBLIC INPUT

On March 10, 1983, a public meeting was held regarding the proposed action. Concurrently, public comment was solicited from information made available. A responsiveness summary is attached in this package.

STATE INPUT

The State of Washington, through its Departments of Ecology and Social and Health Services, along with the City of Tacoma and the Tacoma/Pierce County Health Department, have cooperated with Region 10 and have supported this project. The State/EPA contract is attached in the package.

RECOMMENDED ALTERNATIVE

Section 300.68(e)(i) of the NCP authorizes initial remedial measures that are necessary to limit exposure or threat of exposure to a significant health or environmental hazard. The current contamination of Well 12A and the potential for serious additional contamination of the aquifer absent action to pump and treat Well 12A warrants implementation of the proposed remedial action as an initial remedial measure. Our evaluation of the cost-effectiveness of each of the proposed alternatives, the comments received from the public, information from the Remedial Investigation and Feasibility Study Reports, and information from the State, support a decision that the proposed project of treatment of the contaminated drinking water well by aeration, utilizing the pumping as a hydraulic barrier, is the appropriate remedy.

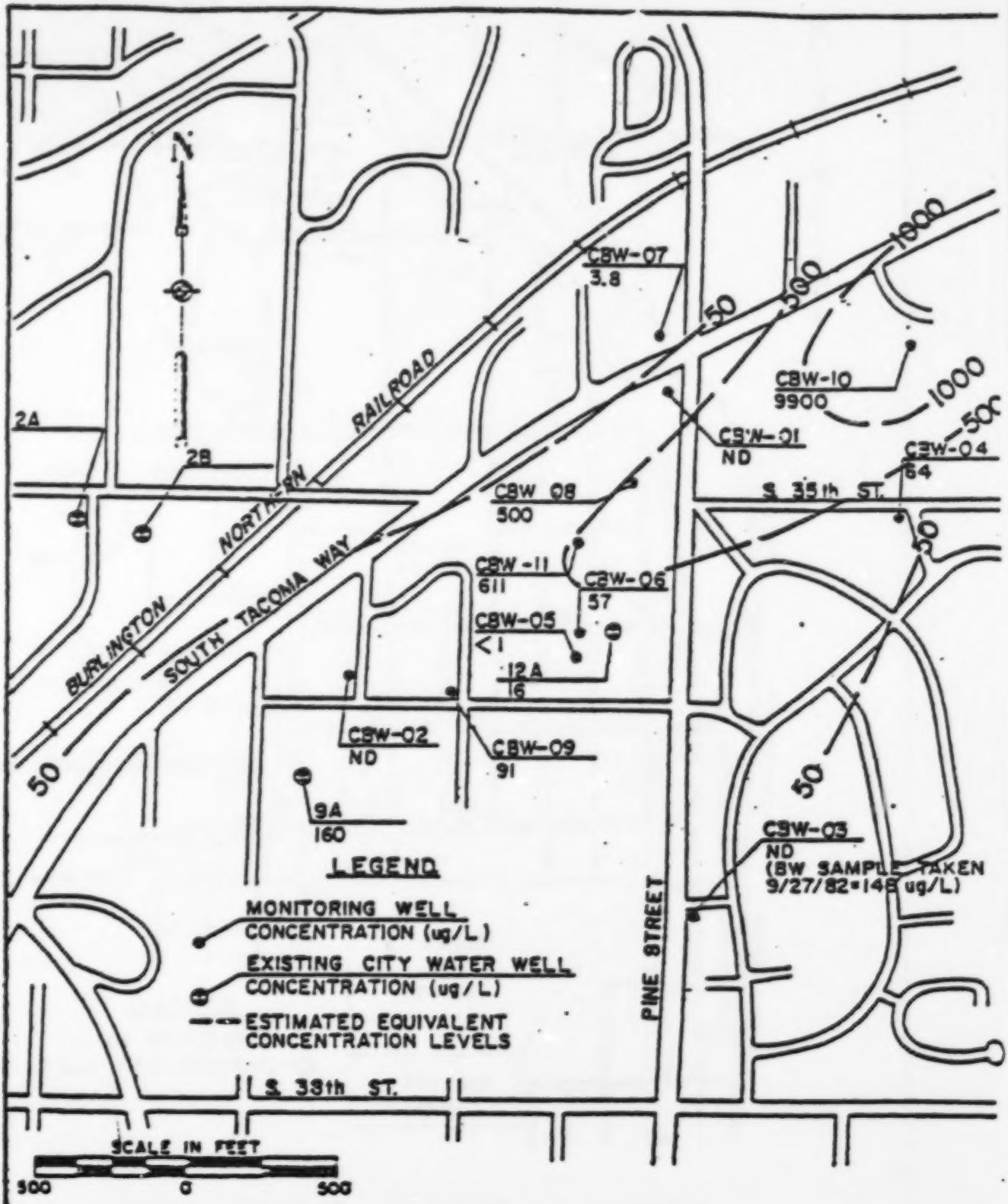
Section 300.68(j) of the NCP also states that the appropriate extent of remedy shall be determined by the lead agency's selection of the remedial alternative which the agency determines is cost-effective (i.e., the lowest cost alternative that is technologically feasible and reliable and which effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare, or the environment. The above information supports a finding that

this proposed action would be a necessary component of any final remedy that will effectively mitigate damage to and provide adequate protection of public health, welfare, and the environment.

Approval of this project is requested along with approval of an allocation for $1.2 million for its implementation as needed above, the State of Washington has endorsed the project and has assumed a 10% cost share.

SCHEDULE

This project is based upon a hydraulic barrier being developed prior to heavy usage of the wellfield. This would dictate project start up in July 1983. Immediate authority is required to complete design and construction by this deadline.



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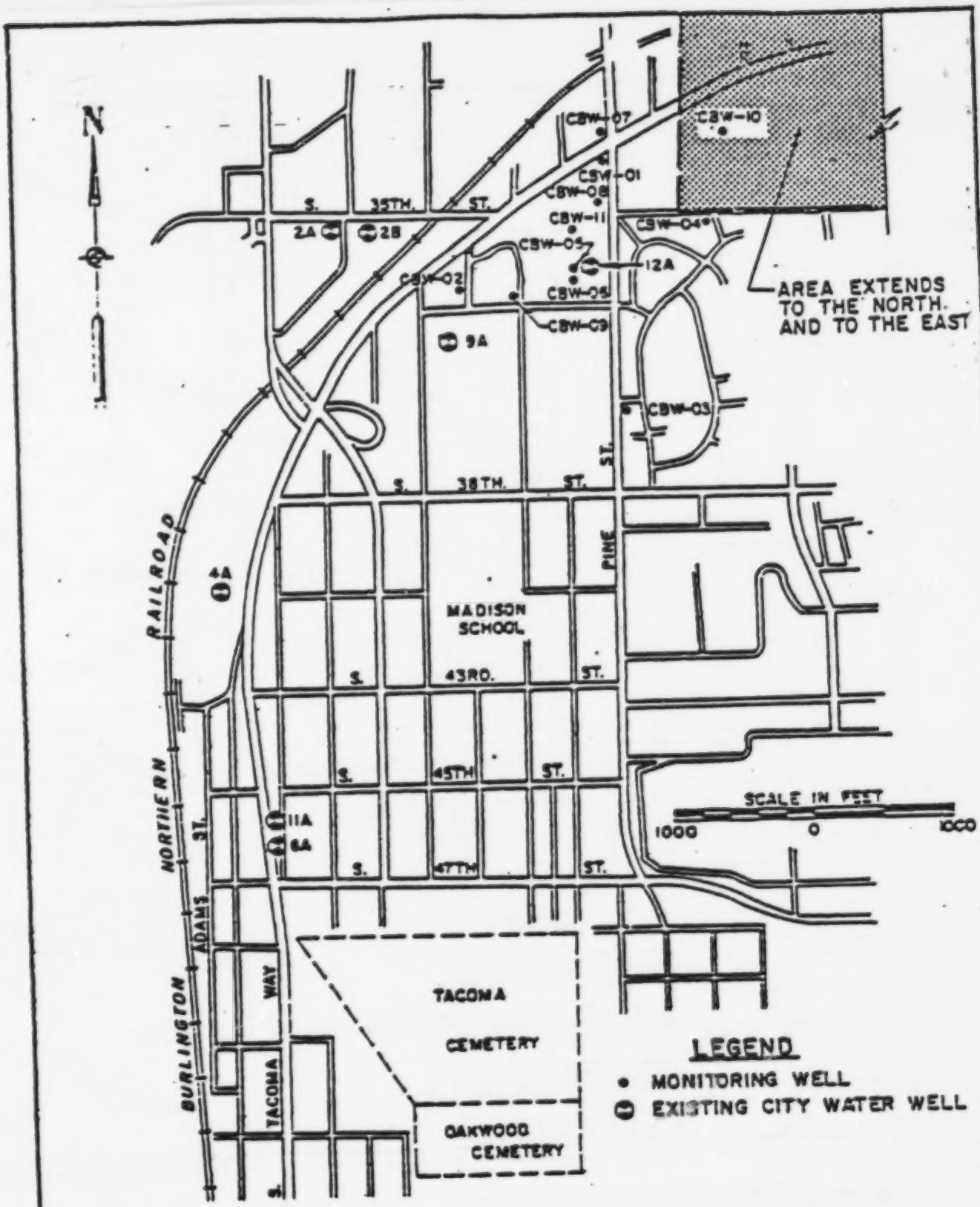

PROBABLE PRIMARY SOURCE AREA

REMEDIAL INVESTIGATION
TACOMA WELL 12A
TACOMA, WASHINGTON